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The Examination of Hunters as to Soundness, with a View to Purchase.*

By J. C. Heather, M.R.C.V.S., Sandiacre.

The subject which you have chosen for my paper, "The Examination of Hunters as to Soundness, with a View to Purchase," is one of the most familiar subjects which you could have selected. Every member of the profession is well acquainted with it, and there is none that I know of that gives rise to such a difference of opinion, because the subject itself is the opinion of the examiner.

In the hands of the practitioner in whose practice the examination of hunters as to soundness with a view to purchase is a daily occurrence, it is a very simple matter, but in practices where only an occasional examination is made it may cause a little more thoughtfulness, and perhaps the practitioner will devote more time to certain points than the person who is doing it daily.

The old saying, "Practice makes perfect," applies to the examination of hunters as it does to anything else. If you have a doubt on any point, examine it thoroughly and apply what test you think necessary before giving your opinion, for once you give your opinion you must be prepared to adhere to it. Your opinion is what is asked for.

In putting my paper before you a definition of soundness is necessary, and the one I give is solely for the purpose of my paper, and is: "Soundness is the adaptation of conformity."

Do not hurry over your examination, and satisfy yourself before giving your opinion. Consider the smallest detail. Pay as much attention to the horse in the stable as you do to it outside, for often you will get confirmation of something in the stable that you have found when the animal is out of the stable, or *vice versa*.

Much is expected from the veterinary surgeon when he examines a hunter for soundness with a view to purchase, and much has to be taken into consideration by the veterinary surgeon in his examination.

We are often asked to examine horses at sales, where proper accommodation to examine horses is not provided, and a clause in the conditions of sale is that horses must be examined before removal. This makes it rather awkward for the practitioner, and the only opinion he can give, if the clause is carried out, is one that is according to the extent of his examination, but in the majority of sales leave is given to the veterinary surgeon for the removal of the animal to a place where suitable accommodation is povided. If not, purchasers buy on the conditions of sale and the examination must be made accordingly.

When examining a hunter for soundness with a view to purchase, as I said before, much must be taken into consideration by the veterinary surgeon—the client, the seller and, last but not least, the examiner, and, taking these in the order named, I start with———

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The Client.—Whether he intends the subject for himself or herself. The purpose for which he or she intends to use it. His adaptability as a horseman or horsewoman. The country where it is going to be used. Suitability of client for subject. Suitability of subject for client, and suitability of subject for country and use intended.

The Subject.—Whether broken or unbroken. Conformity. Breeding. Age. Use for which it is intended and its general adaptation to such. Suitability for country and use for which it is intended.

Seller.—Experience. General character. Reason for selling.

Examiner.—To form an opinion, use tact in forming it, and, when formed, be prepared to adhere to it.

With these things in one's mind, it is advisable to see the subject in the stable, and when looking at your subject there look also at its surroundings—whether the manger has been removed; if not, whether empty or not; manner in which the animal is secured or held up; what it is fed on; bedding; clothing; bandages, if any; and matters of general stable interest. Make a superficial examination of your subject in the stable, and also note its surroundings and general temperament in the stable, confirm your suspicions and, having satisfied yourself as far as you can, have the animal walked outside.

In walking the animal outside use a halter or snaffle bridle; do not restrain it with a bridle that will alter its natural action or gait. Having the animal outside, examine the general appearance and conformity from front view, side view and back.

Examination.—Start at the head. View ears, eyes, facial expression. Examine teeth for age. Pass on to the poll for poll evil or other disease. Pass hand over intermaxillary space for enlarged glands or other swellings; feel the larynx for scars of operation; then examine under part of neck for enlarged or dilated œsophagus, injury to trachea; examine jugular veins, and note if any pulsation in front of chest or along jugular veins.

Always examine near side first. Examine front of near fore leg, starting at shoulder point. Note general conformity of knee. Examine front of knee for marks of injury, enlargements, swellings or anything likely to impair the usefulness for which animal is intended.

Examine metacarpal bone for splints and exostoses. Pass on to pastern—examine for ringbone (high and low); then coronets for sidebone, coronitis or injury to coronets. Pass on to the back of the leg. Examine elbow for capped elbow, enlarged elbow; then down back of fore leg to the back of knee. Examine flexor tendons, suspensory ligament, and for over-reach or any external injuries; inside of fetlock for brushing or speedy cutting; also examine sesamoids. Pick up foot and confirm your examination of coronet. Examine inside of foot; notice condition of frog, shape of foot, condition of sole—whether dropped or not. If shoe on, notice wear on shoe, type of shoe, any peculiarity of shoeing. Having finished ex-

amination of foot, proceed to the withers. Examine for injury to chine. Pass along back; examine for saddle galls or other injuries caused by saddle. Examine contour, hind quarters; examine stifle joint; then hock, for spavin, curb, bog spavin or any defect, and the remainder of hind leg as fore leg. Pick up hind foot, examining for canker, thrush, injury to sole. Proceed on off side as with near. Examine abdominal wall for hernia, warts, etc.

Having concluded your examination, have the animal walked and notice any peculiarity of action. Trot your animal. Examine for lameness; always look for lameness behind when your animal moves from you, and examine for fore-leg lameness when your animal moves towards you. Make your groom walk around your horse when turning so that the animal may always be in your view; never let the animal walk around the groom. When turning look out for stringhalt, shivering, hip lameness, or injury to back. Compare any defect in action with formation of knees or hocks. Have the animal turned short round for stringhalt, shivering and injuries to muscles of quarters and back. Have animal backed for shivering and lameness of muscles of back.

Having satisfied yourself, examine animal for wind; if an unbroken animal, lunge same. I prefer a slack bearing rein in lunging for wind. Lunge your animals first right-handed, then left-handed, examining to see whether he grunts at the stick. In the broken animal have a saddle on and have it ridden and galloped; note the action of animal when been ridden and listen for whistling, roaring, or any unsoundness in wind. Apply what tests you think necessary until you are satisfied whether the animal is sound or unsound in its wind. The point arises, is it necessary for an examiner to ride a horse for examination of wind? The answer I give is that it is an advantage to ride a horse, for you can detect noise in a horse's respirations better riding than you can on the ground. Having examined your animal for wind, have him taken to a suitable place and examine his eyes.

Allow him to stand in the stable at rest for twenty minutes or longer for lameness or any peculiarity of action to develop. Have the animal trotted out again and get the shoes removed for further examination of feet. Trot horse on level without shoes if necessary. Have shoes put on again and, having satisfied yourself that the animal is sound or unsound, prepare to give, and give, your client the result of your examination and your opinion.

Such is the general routine of examination of hunters as to soundness with a view to purchase, but there are times where opportunity is not afforded to make such examinations—where horses cannot be ridden or tried for their wind. In such cases as these, one must base one's opinion on the extent of the examination one makes and arrange for a further examination. I refer to the examination of horses at repositories and auction sales, but there are generally conditions at such sales that constitute a warranty and one must examine accordingly and give an opinion according to the extent of one's examination.

Discussion.

Mr. E. Marrison, opening the discussion, said he first had to thank the contributor for his most valuable paper. He thought it was a subject on which some were getting more or less rusty, through the increase of motors. He found himself generally in agreement with the method Mr. Heather had outlined and he had few criticisms to offer. The whole question resolved itself into what was considered an unsoundness. Let them first take age into consideration as a stumbling block. He felt that age was not taken into consideration as it ought to be and that the teeth were not examined as thoroughly as their importance warranted. It would be quite easy to overlook long or sharp molars; the animal might have been kept on soft foods and there was even the possibility of the purchaser taking action that the animal had not been properly examined. He merely mentioned this as the molars were seldom examined. He would next consider soundness of the limbs. He would ask Mr. Heather if he considered simple splints an unsoundness. He (Mr. Marrison) was rather of opinion that all splints occasioned unsoundness.

It was very easy to confuse sesamoiditis with windgalls. In sesamoiditis one had a tense swelling, whereas in windgalls the swelling was softer and more fluctuating and was not considered an unsoundness.

With regard to ringbone, some authors went as far as to classify as false ringbone the enlarged epiphyses, but if the limbs corresponded he thought, generally speaking, they could be classified as coarse joints.

The examination of the feet was a very vexed question. Pointing was not diagnostic of navicular disease. Some years ago he examined and passed a hunter which had been cast in a horse box the same day. A few weeks later she was observed to be occasionally pointing both fore. She pointed for seven or eight years; in fact, all the time the purchaser had her, but she never went lame and never missed a day's hunting. She bred several foals and all remained sound.

There were varying degrees of sandcrack and false quarter and even sidebones. With regard to sidebones, if the examiner was not satisfied he should lift up the foot and spring both cartilages with the weight off. There were cases on record where an animal had sidebones at the back and not the front; he would like to ask Mr. Heather if he considered this constituted an unsoundness. He considered bog spavin and windgall permissible to a slight degree, depending on the conformation of the hock, but he had a different opinion about spavin. One encountered rough, coarse hocks at times which made one very suspicious, but providing both hocks agreed and the animal passed out sound after a good gallop, there was no danger in passing.

Two forms of capped hock could be met with—the synovial, which was an unsoundness, and the more common superficial sinuses, which were not always an unsoundness. He was of opinion that the same applied to curb as applied to coarse hocks—it was permissible to pass a curb if the animal was not sickle-hocked and was a good hunter.

Mr. Marrison pointed out that vices were usually found afterwards.

The examination of the eyes was most important. For this purpose he had found a lighted candle the most satisfactory and he was of opinion that there was no instrument made to compete with it. If the box was dark enough you would get three images.

With regard to wind, if there was a strong breeze blowing during the examination the man on top had a great advantage and he was confident that no one could give a definite sound opinion on a horse's wind unless he rode that horse.

As stated at the commencement of his remarks, he had few criticisms to offer; he had, therefore, endeavoured to confine himself to such points as would be productive of an interesting discussion.

Mr. Deville thanked Mr. Heather for his paper, which was one of great interest to them. Personally, he was somewhat disappointed, as he expected something more practical in view of the fact that Mr. Heather's experience in examining hunters was so extensive and of such long standing. They would have liked to have been told what blemishes and defects, which in themselves might be theoretically unsoundnesses, might be passed over in an otherwise good hunter as, for instance, chipped knees, sidebone, stringhalt. Furthermore, he considered Mr. Heather had saddled

the examiner with more responsibility than he (the speaker) would care to accept. Mr. Heather had not mentioned unnerving, the operation for roaring, and the examination of the heart, which he considered to be of great importance, and one often overlooked by many of them.

He considered the wind important, as there was often a difference of opinion, particularly in a slight whistler, when a horse might whistle to-day and not to-morrow. He would like to ask Mr. Heather if he would lunge a young horse at grass and, if so, for how long? What bearing had bandages and clothing on examining for soundness?

Mr. A. LEVIE said that the subject was all important in his day. Mr. Heather defined soundness as the adaptation of conformity, and with that he agreed, but what interested him, as a practitioner, was the question: "When are you safe against an action being brought against you?" as what he said was sound another veterinary surgeon might say was unsound. That was a very important point in practice. As far as he knew, no action could be brought if a man did not pass a horse, but could be if the animal was passed, and not only was he liable for the value, but also for the costs of the case, which was a very serious thing. Mr. Deville brought to notice the necessity of examining the heart. He (Mr. Levie) had that necessity brought to his notice when two horses were tested out for a certain Master of Hounds. One of the animals showed slight respiratory trouble, which on a closer examination revealed valvular disease of the heart. Valvular disease, however slight, might be a serious thing for the veterinary surgeon to overlook, as it jeopardised the life of the rider, and he supported Mr. Deville in the great importance of thoroughly examining the heart.

In the *modus operandi* Mr. Heather laid down a certain routine, but he had not emphasised the importance of dealing with certain conditions, such as navicular disease, bone spavin and curb, which often opened up special points of difficulty. Mr. Levie said in examining hunters he always made it a rule to trot and gallop first to the right and then to the left; rightly or wrongly, he always felt that this method aided in bringing out certain points which might be overlooked if the animal was only allowed to go one way, and he would like to know Mr. Heather's opinion on this.

Mr. J. D. FULTON said he was glad to hear the point raised about the heart. If a horse had a strong heart there was nothing wrong with his wind. It was very important to examine the heart before bringing the horse out of the stable. With regard to galloping, some men gave horses a terrible gruelling. Was this really necessary? He would like to hear Mr. Heather's opinion on stringhalt.

The HON. SECRETARY (Mr. O. V. Gunning) said he would like to know what importance Mr. Heather attached to a horse grunting to the stick.

THE REPLY.

In reply, Mr. HEATHER said he had been examining hunters for forty-seven seasons. If asked by a client if a horse was suitable for the purpose, he would first enquire: "Is it for yourself?" If the animal did not finally come up to all that was wanted, there was often a tendency to blame the veterinary surgeon. It was important to know the suitability of the client for the subject; the temperament of the man who would ride the horse was all important. Some men would easily upset a horse; some men rode straight, others did road hunting. Then again, there was to be considered the country for which the animal was required. A hunter required for Leicestershire would not do for a Northern county.

A hunter was either required for hunting or for show. If for show, it must be free from blemish, but for hunting a blemish would do no harm, providing it did not interfere with the animal's usefulness as a hunter.

Mr. Marrison had mentioned the importance of examining the teeth, and with reference to that he would mention that invariably a pulling horse had wolf teeth and the pulling frequently started some form of diseased teeth. He, the speaker, usually made a practice of running his hand down the side of the jaw to see, but apart from this the animal would usually be found thriftless. His advice would be "if you get a pulling horse examine the teeth." One could be mistaken about the age in horses that had been "bishoped," They would be put down as eight or nine, but when ridden would ride like old animals. If examined six weeks later the marks on incisors would be found completely gone and the molars ground down. No doubt "bishoping" was not so frequent as it was thirty or forty years ago.

In reply to Mr. Marrison, regarding splints, if the splint was in the knee they need take no notice of it if the horse was going strong, but if it was inside, close to a tendon, it was likely to be interfered with and such an animal should be rejected. He agreed with Mr. Marrison that a simple distended condition of the synovial bursa in the sesamoid region could be easily confused with sesamoiditis. The simple distension was of little consequence, except for looks, but if one got enlarged sesamoids and thickening at the insertion of the tendon, it was a serious condition; the horse turned out sound, but went lame with work, again going sound with rest. He had found that treatment of that condition was difficult and unsatisfactory; in fact, worse to treat than stifle lameness.

With regard to ringbone, there were true ringbones and also the condition Mr. Marrison referred to as false ringbone. Position was an important point with ringbone; a high ringbone, well to the side, might not cause trouble, but when right in front they interfered with the joint and caused lameness. The speaker did not think that ringbone lameness was due to concussion but to laceration of the tendon.

If they saw a high-heeled, narrow foot, they should always suspect navicular disease. The animal might come out sound. A horse thus affected always went like an animal on hot bricks, but the only practical way to be sure that a horse had navicular disease was to see him out in the open. However, there was nothing more difficult to prove. One encountered animals with contraction and showing every symptom of navicular disease, but later on one came to boil out the foot and could find no trace of the disease.

Another deformity of the foot was caused by a formation in front of the pedal bone causing a marked bulging of the front of the hoof. There was often a lameness similar to chronic laminitis. In any case such an animal should be rejected.

With regard to sidebones, Mr. Heather quite agreed that where one got elasticity of the cartilages, one should not call it sidebone and, providing one had a good frog to take the concussion and the action was not interfered with, one was quite safe in advising one's client in the animal's favour. The speaker here cited a similar animal which had hunted two seasons and then made a profit in London.

Regarding stifles, some horses naturally had boggy stifles and others enlarged stifles. Horses with enlarged stifles usually had an extravagant hock action. Providing they were both equal, all that it was necessary to do was to mention. A horse with diseased stifles usually went with his toes pointing out and if that was the case and the enlargement was on one side the animal should be rejected.

In enlargement of the sheath of the gastrocnemius tendon the hock was not reliable. One could aspirate the fluid and put a charge on, when the animal would go sound for a time, then go lame again, so they must turn it down. A knock-kneed horse would stand better than a horse bowed. Close in was always better than open. If the gastrocnemius tendon was involved the animal would perform badly going up hill.

With regard to fired hock, as long as the animal was going sound they need take no notice of it. If in doubt they should test by working hard, resting, and working again.

Bog spavin, the speaker said, seldom did any harm. He had had about two in his time that had gone wrong.

Both bog spavin and windgall were permissible to a slight degree, depending on the conformation of the hock, but he had a very different opinion about spavin. However, one would find rough, coarse hocks at times that would make one very suspicious, but, provided both joints agreed and the horse passed out sound after a good gallop one need have no hesitation in passing.

There were different forms of capped hock, but Mr. Marrison had mentioned three. The same applied to curb as applied to coarse hocks. At times it was permissible

to pass a horse with curb, providing it was not sickle-hocked and was a good hunter.

There were also varying degrees of sandcrack and false quarter. In examining for sidebone, if the examiner was not satisfied it was a good plan to lift up the foot and spring both cartilages with the weight off. There were cases on record of animals having sidebones behind and not in front. A sidebone was always an unsoundness.

The speaker remarked that vices were usually found afterwards. In answer to the question: "Should he condemn a weaver?" he certainly should; weaving horses tired themselves and it was a sign of brain disease or spinal cord affection.

Examination of the eyes was most important, and the most satisfactory method of examination was a lighted candle, providing one had a loose box dark enough, when one could get the three images. There was no instrument made that would compete with a lighted candle.

The examination of the heart was most important. Occasionally one would meet an animal in which one could see the heart throbbing in front. With a stumbling horse, or one that blundered, always examine the heart; they stumbled more as they became more tired.

The condition of the pulse was not always an accurate indication concerning heart disease. An irregular pulse signified a valvular heart and an intermittent pulse indicated intermittent heart action.

With regard to wind, if a horse was a whistler, no matter how slight, reject. Never give the doubt to the horse, but it might be necessary to change bridles to make sure that certain sounds heard were not abnormal, and no man could give a definite sound opinion about a horse's wind unless he rode that horse.

He would never pass a horse that grunted, though he did own a black mare which grunted, but never made a noise. She had had pleurisy. When she died he made a *post-mortem* and found a thickening of the pleura. He always gave the animal being examined right and left gallops. He recalled a stallion that went to the left perfectly sound, but when ridden to the right made a distinct whistle. He could always catch it at the turn, but had he not been riding the animal he could never have detected it.

The animals' clothing was very important. If he saw a horse with good clothing he knew the owner was not frightened to put it on. Some horses would eat their clothing and even the saddle. Again, if he saw a horse come down to the sale with his legs well bandaged and kept walking about to keep the swellings down, he always paid special attention to joints and legs.

The facial expression was another important point. If one saw a lop-eared, dozey horse there might have been something down its neck and they should look out for signs of faking. The speaker here illustrated a case of an animal he was examining. He liked the horse and liked the rider, but had a feeling that something was wrong. He advised his client to get a warranty "Quiet with Hounds," and it was lucky he did or he would probably not have examined any more for that client again.

He omitted to mention marked knee. If one found an enlargement inside due to brushing or interfering, they should not have anything to do with the horse.

Regarding young horses, if it was a young horse at grass it was quite unfair to give an opinion, but if taken up from grass and allowed to stand until empty, it was quite all right to lunge. Above all things, let them never lunge a horse without a bearing rein. Concerning stringhalt, it was unsoundness, but he had never known a case of stringhalt, where there were no symptoms of shivering, to do any harm, and therefore it was permissible to advise the purchase of an animal with stringhalt providing, of course, that in other ways he was satisfactory. One of the best tests for shivering was to pick up both hind legs in turn giving a half bend, and bend the toe backwards. The stud groom often had the best opportunity to detect a shiverer when washing out the feet.

It was his rule always to put a horse down unsound until he found it sound, and in answer to Mr. Levie's point concerning legal liability with regard to soundness, Mr. Heather said: "Always give your opinion and if you use reasonable care you need not fear any legal action."

Colic in Horses.*

By Capt. RALPH H. LEWIS, U.S. Army Veterinary Corps.

As far as the history of colic is concerned, it was known during the first century after Christ. Columella described three kinds of colic a hundred years after Christ. In the fourth and fifth centuries, veterinarians wrote fairly accurate descriptions of colic, and in the twelfth century flatulent colic was differentiated from others.

The word "colic" is derived from the Greek "kolikos," which, strictly speaking, means the colon and which, in general terms, alludes to a painful condition of the intestines, especially the colon. Although paragraph 2, Army Regulations 40-2250, prohibits the use of the word "colic" in reporting cases showing colicky symptoms, the term no doubt will always be used by the veterinary practitioner in speaking to the layman of such cases. Not even from a practical standpoint does the use of the term colic appear well founded, because it might lead the practitioner into the belief that colic was an entity which is always to be treated according to the same principles.

We have, as a classification, true colics and false colics. The true colic develops from some altered condition of the stomach and intestinal canal, while false colic arises from a diseased condition of some other abdominal organ, such as the bladder or the kidneys, which simulate symptoms of colic. True colic is subdivided into the following classes: Colic known as a nervous cramp without any apparent cause; colic due to over-feeding; flatulent colic; and colic due to stoppage in the intestinal canal, as from stones, fæcal accumulations, concretions, etc.

Among the symptomatic colics we have those caused by worms, the administration of certain kinds of medicine, or the ingestion of foreign material which acts as poison. Colics are brought on by structural diseases of the various abdominal organs of the body or by malposition of the intestinal organs, and are also due to wounds of the stomach, intestinal lacerations, perforations, etc.

It is possible to-day to differentiate many of the different conditions belonging to the group known as colic by a proper examination of the patient. Such a diagnosis can now be made more frequently than is the case with various diseases of other groups which are not yet united under collective names. It would undoubtedly be more convenient to treat a patient affected with colic by routine, without an exhaustive and tedious examination, and without taking into consideration the real requirements of the case, but this procedure would surely do harm in many cases where treatment would be successful if administered as indicated by the particular underlying condition.

Colic is a condition rather peculiar to the horse, that is, it is prevalent among horses and unique in that there are many diseased conditions of the stomach, intestines, and the great colon which give rise to colicky symptoms in the horse which do not present the same symptoms in other animals; therefore, the horse may be said to be predisposed to these conditions. In other words, the cow, dog, or cat may have the identical disease a horse has, but will not exhibit any symptoms of colic. There is no condition less understood, or more difficult to recognise than the particular trouble that may be causing these symptoms of colic.

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General Examination. Temperature and pulse must always be taken and investigation made to determine how long the animal has been showing symptoms of colic, the kind and amount of food being fed, and time of last feeding. If the symptoms come on immediately after a meal it may indicate indigestion, but if the animal has not had anything to eat for five or six hours it is probable that the stomach is not involved and that the trouble is in the colon, cæcum, or some place posterior to the stomach. Inquiry should be made as to the water given, particularly if there is any indication of overloading with cold water. The mucous membrane of the eye and of the nose should be observed as well as the peristaltic action of the intestines and the respiration. The temperature combined with the pulse and respiration form a combination which is of the utmost importance in making a diagnosis. Auscultation should never be omitted. Rectal examinations are both interesting and very necessary.

Causes. There are certain general and predisposing causes of colic in horses which should be considered. The first and probably the most important is the small size of the stomach. This organ is so small that in the process of eating, the food, after a certain stage, passes out of the pyloric orifice as fast as it enters the cardiac end, and greedy feeders that bolt their food and pass it into the stomach improperly masticated and poorly mixed with saliva, are fit subjects for colic. The construction of the stomach prevents regurgitation of undigested or fermented food, and the facts that the œsophagus enters the stomach at right angles, the pyloric end possesses a trap, and the stomach does not rest on the floor of the abdomen, all tend to prevent relief of that organ by vomition. This results in a great accumulation of gas due to fermentation of undigested food.

Aneurism of the anterior mesenteric artery is another predisposing cause of colic which follows the formation of a thrombosis or embolus in the intestinal artery.

Age must also be considered. Horses which are old lack vitality and may have a defective dentition, while circulation may be somewhat retarded. In these cases there is a slowing up of the blood supply to the stomach and intestines at a time when more blood is needed for the proper performance of digestion.

Infrequency of defæcation in horses is a predisposing cause, since stasis of the bowels results in colicky pains.

The feeding of green food, or food that is indigestible, spoiled, mouldy, sandy, and dirty, has a tendency to produce colic.

The watering of animals at irregular intervals or when hot and tired predisposes to colicky pains.

Cribbers and wind-suckers are also subject to frequent attacks of colic (chronic indigestion).

General Symptoms. Colicky pains may be either sudden or progressive and the symptoms may vary from a slight uneasiness to those of great violence. The animal may show some premonitory symptoms such as lack of spirit and loss of appetite. The patient may stretch his legs out in attempts to urinate and, when turned loose, may lie down very carefully or throw himself down violently, roll occasionally, or turn over on his back and remain there. The symptoms usually come on in paroxysms, between which the animal is quiet and worn out, although he may then eat a little until a renewed attack interrupts the meal. The ears and legs are frequently cold, followed by a profuse sweating over the entire body. Peristalsis is usually diminished and in some cases entirely stopped. The rectum and bladder may both be distended, causing increased pain. Breathing is nearly always laboured while the temperature is usually normal at first, but may rise later, and sometimes just prior to death may be subnormal.

Prognosis. Prognosis should always be guarded. Apparently slight cases may terminate fatally, while cases of more serious aspect result in early recovery. Signs of improvement are usually the abatement of pain, followed by a more uniform distribution of body temperature. Cessation of sweating is always a good sign if followed by improvement of pulse and resumption of peristaltic action, with a return of the desire to eat and drink.

Differential Diagnosis. Whenever symptoms of colic are present, it is always necessary to examine methodically all of the organs which may be the seat of the underlying affection. Symptoms of restlessness may be caused by a number of the following morbid conditions:—

Diseases of the Stomach: Acute and chronic gastric dilatation, gastritis, gastric ulcer, and parasites in the stomach.

Intestinal Diseases: Acute enteritis, enteritis, meteorism, impaction, intestinal obstruction, stenosis, thrombosis of the mesenteric vessels, strangulation, torsion and volvulus, invagination, and intestinal worms.

Acute peritonitis.

Diseases of the liver and bile ducts: Acute and chronic hepatitis, rapid increase in the size of the liver, rupture of the liver.

Diseases of the urinary organs: Acute nephritis, nephritic abscess, pyelitis, obstruction of the ureter, inflammation of the bladder, occlusion of the urethra.

Diseases of the sexual organs: Torsion of the uterus, labour pain in normal delivery and in abortion.

Diseases of other organs: Pleuritis, paralytic hæmoglobinæmia.

Treatment. In the treatment of colic, all efforts to relieve the condition must be directed at the underlying cause if serious errors are to be avoided. Every veterinarian has his so-called pet prescription for the different types of colicky pains, but no uniform treatment can be given for all types. Every case should be placed in a roomy, tightly closed box stall, with clay floor well covered with dry straw. Operative treatment includes the introduction of the stomach tube, lavage of the stomach, reductions of displacements, the removal of foreign bodies per rectum or by rolling, and finally laparotomy and enterotomy. The last two procedures are quite dangerous for the horse and must be perfected to a greater degree before many animals can be saved by them.

In the Army the unit veterinarian is constantly instructing the personnel, both commissioned and enlisted, of the various mounted organisations, in the care of animals and stable management, and he in turn is consulted regarding the kind and amount of feed to be given animals. This system tends to lessen the number of cases showing colicky symptoms. Sufficient attendants are always on hand to prevent animals showing colicky pains from rolling and recklessly throwing themselves down upon the ground. Animals of the Army are fed and watered at

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Rays of the Spectrum in Veterinary Practice.*

DISCUSSION ON MAJOR W. G. BURNDRED'S PAPER.

Mr. J. HOLROYD: In the first place, may I be permitted to congratulate Major Burndred in being the first gentleman to come before us dealing in such a thorough manner with the subject of ultra-violet radiation. It is only within quite recent times that the veterinary profession, with one or two isolated exceptions, has shown an interest in actinotherapy. It is a line of treatment which one has to admit is in its infancy so far as we are concerned, and we of the Lancashire Division can congratulate ourselves that we have one of our own members so capable and up-to-date as to present to us the paper to which we have just listened.

The only point with which I am not quite in agreement is the use of goggles for dogs. When I started with the mercury vapour lamp, naturally I put goggles on the animals, but now I have discarded them and use a piece of black stuff in the form of an equilateral triangle with long single tapes at two of the corners and a loop at the third. The looped corner is placed centrally over the poll and the single tapes passed under the jaw, crossed, and carried up behind the ears through the loop and then fastened underneath the throat. I find such a bandage as this fits more closely to the eyes and face, and there is less likelihood of the light reaching the eyes. Also some of the goggles are very dark and I should advise anyone who equips himself with a lamp to get pale goggles. You can then see your patient better and see what you are doing.

Major Burndred mentions that we are concerned with the ultra-violet rays between 1850 and 3900 angstrom units, and mentions about wireless waves being much higher up the scale. Certainly they are much higher, but unless one realises what the anstrom unit is, one has no conception of the enormous difference between a wireless wave and a wave of the ultra-violet region. An angstrom unit is one ten-millionth part of a millimetre, or roughly one two-hundred and fifty-millionth part of an inch, whereas wireless waves are reckoned in metres or, roughly, thirty-nine inches.

Like Major Burndred I do not think the coats of our animals prevent them from deriving benefit from the rays in general irradiations, but in cases of local applications I always clip the hair as close as possible each time before applying the rays, and it is surprising how quickly hair seems to grow after treatment. In fact, I fancy violet rays would be one of the best hair restorers we have, but I have not so far had a suitable case on which to try it.

General irradiations seem to be indicated in all conditions we know as "deficiency diseases," and every year more and more diseases are being so classified. In these instances the effect of the application of light is not to suppress any positive morbid agency, but to restore or initiate normal physiological activities. It is following this line of argument that rickets is one of the diseases suitable for violet-ray treatment, but I warn you not to expect violet-ray to cure by itself; it is absolutely necessary to continue our usual line of treatment—vitamines, hygiene, feeding, as mentioned by Major Burndred—or you will be doomed to disappointment.

My most successful case under this heading was a case of osteomalacia in a Fox terrier. The whole of the bones of the face and lower jaw were soft, swollen, mis-shapen and felt just like rubber. The teeth were all loose, as if embedded in rubber and the incisor teeth would not meet by about an inch, owing to the downward curvature of the lower jaw. This animal had bi-weekly general irraditions of ten-fifteen minutes at about thirty-six inches. Cod liver oil, metagen, suitable food, etc., were given, and after about six weeks it was quite respectable looking. Certainly it still has some deformity of the cheek bones, but the bones are quite hard and the animal's teeth meet.

In all animals treated it is surprising what a beneficial effect the rays have on the animal's general health; they are much livelier, they eat better, and without exception the owners come back and say how the animal has improved.

I am much obliged to Major Burndred for presenting such a valuable paper, and must again congratulate him. (Applause.)

Mr. J. H. WHITE said he had been equipped with an apparatus a short time and had been able to treat a few animals with it. One patient he had treated with great success was a case of follicular mange in a dog. The animal was in a very bad condition before treatment, but after clipping and combining the "ray" treatment it had improved wonderfully, also the coat had grown quickly. His greatest difficulty with goggles was that they covered a good portion of the dog's face, and he was not able to get at the portion under the goggles. He had been very successful with the few cases he had treated.

Mr. W. ACKROYD asked Major Burndred if he had treated interdigital abscesses, and how they were affected.

Mr. W. WOODS recommended all who were interested in the subject to read the supplement to *The Times* of May, 22nd, 1928, which dealt with it in a very interesting manner. He went on the Continent with a party of Major Hobday's some time ago, and there found that this apparatus was used in the military stables and schools and they were told then it would not be long before it was part of the necessary equipment of veterinary establishments. They saw horses being treated there, but did not stay long enough to see the results of this treatment.

Mr. E. H. CURBISHLEY asked Major Burndred whether any of his patients had had ill effects through ultra-violet ray treatment. Foods treated by ultra-violet rays were said to have a good effect on ricketty dogs.

Mr. J. K. BATEMAN cited a case of a cross-bred Sealyham dog which had paralysis following distemper. He treated it with ultra-violet radiation, but the results were very disappointing. Referring to X-ray work, Mr. Bateman said that his experience in this direction was not a happy one. Two dogs which had swallowed foreign bodies had been X-rayed, but in each case the photographs did not reveal the situation of the stoppages and the animals died. He had treated cases of muscular rheumatism in dogs by ultra-violet radiation with good results.

Colonel J. W. BRITTLEBANK said he was glad to see his old friend Major Burndred amongst them again. He had thrown a good deal of light on the subject of ultra-violet radiation, and he would strongly recommend the members to carry out Mr. Woods' advice and read the supplement to *The Times* of May 22nd, 1928. In this publication there was also epitomised a good deal of the recent work carried out on vitamines. The ultra-violet radiation apparatus was a new toy which would prove itself useful, and a good many of his friends had had it installed in their homes. Colonel Brittlebank went on to say that he had been informed by a friend, who was a specialist on skin diseases, that the results of treatment were often not what one might expect, and it behoved one to take extreme care. There were a good many people who were making good livings by ultra-violet ray treatment, who had not had any scientific training, and although the skin at first appeared to have little wrong with it, a condition was sometimes formed which caused much suffering.

(Continued from previous page.)

regular intervals and are given sufficient work daily to keep them in condition. Unit veterinarians make daily inspection of all animals. Stable orderlies are on duty at all times and make frequent inspections and animals showing any symptoms of a colicky nature are immediately brought to the attention of the attending veterinarian.

References. "Pathology and Therapeutics of the Diseases of Domestic Animals," Hutyra and Marek, Vol. II; Reeks: "Colics of the Horse."

*Paper presented to the Lancashire Division N.V.M.A., at Manchester, on May 23rd, 1928, and published in last week's *Veterinary Record*.

The speaker said he had seen a good deal of the apparatus in hospitals, and there was no doubt at all that it had come to stay and would play a prominent part in the relief of the suffering. He felt he must pay tribute to Major Burndred for his valuable paper, and to Mr. Holroyd for the way he had opened the discussion.

Major BURNDRED, in reply, said that after promising to give a paper on that subject and thinking the matter over, he began to realise what he had attempted, and feared that his effort would be a failure. He thought that Mr. Holroyd had not looked very closely at the chart he had prepared when he mentioned the difference in ultra-violet and wireless rays. With regard to having an appliance made for local application of the rays, he did not think it was absolutely essential, as the animal did not suffer in any way if the whole body got the rays. He agreed it would be useful to have an appliance to direct the rays to such places as the ears, rectum, vagina, etc. With reference to the difficulty experienced with goggles, he had had no trouble with them. He agreed with Mr. Holroyd that the rays did affect the growth of the animals' coats; the treatment seemed to stimulate the growth of hair. There was always a tendency with something new to depend upon it entirely for treatment, but it was quite ridiculous to suggest discontinuing all other treatment; what he wished to point out was that ultra-violet radiation should be carried out with the usual treatment. With reference to skin reaction, medical men were inclined to over-rate the dangers, especially with regard to getting the skin burnt, but the dangers of this treatment were not so bad as many people would believe. The chief trouble was that operators seemed to think that a skin reaction was necessary to get good results, but this did not seem to be necessary, at any rate with animals. Animals were able to stand a much longer exposure than human beings, and a lot of animals which had been treated successfully did not exhibit any skin reaction. With regard to the case of follicular mange, cited by Mr. White, he had not treated this condition, although there was no doubt that was one of the conditions that ultra-violet radiation would benefit, providing it was combined with the usual lines of treatment. Replying to Mr. Curbishley, Major Burndred said that a patient with a fever temperature should not be treated. With regard to food, he had not carried out any experiments in this direction, although it had been stated by competent authorities that the vitamines were increased after ultra-violet ray treatment. Concerning X-ray treatment, he had had similar results to those cited by Mr. Bateman. He thanked his audience for the way his paper had been received.

THE ROYAL VETERINARY COLLEGE.

Lt.-Col. Sir Merrik R. Burrell, Bart., C.B.E., Floodgates, West Grinstead, Horsham, has been appointed Chairman of the General Purposes Committee of the Royal Veterinary College, in succession to the late Mr. Edgar M. Crookshank, and Mr. Ernest Mathews, C.V.O., who has resigned from the office of Honorary Treasurer of the College, is succeeded by Lt.-Col. Sir Archibald Weigall, K.C.M.G., 39 Hill Street, Berkeley Square, London, W.1.

Tubercle in Milk.

HIGH PERCENTAGE FOUND IN MIDDLESEX.

Twenty-eight samples of milk out of 294 taken in Middlesex during 1927 gave definite evidence of the presence of tubercle bacilli, states Dr. John Tate, Medical Officer of Health for Middlesex, in his annual report. Examination was not complete in 22 samples. In 14 cases the animals responsible for infection were traced, ten being in the county.

"It must be acknowledged," adds Dr. Tate, "that the results of the year's work point to an unsatisfactory position in the county. When it is seen that no less than 10.3 per cent. of the samples of milk in which complete examination was possible were found by animal inoculation tests to contain living tubercle bacilli, and when it is remembered what a small proportion of the total milk consumed 294 samples represent, it is clear that efficient control of bovine tuberculosis by milk sampling only is impossible." It was to efficient veterinary supervision of milch cattle that they must look for definite progress towards eradication of bovine tuberculosis and decrease in the production of tubercle-infected milk.—*The Times.*

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BOVINE TUBERCULOSIS IN GLOUCESTERSHIRE.

A report of the Diseases of Animals Sub-Committee, presented to the Gloucestershire Agricultural Committee on July 16th, stated that the result of the second general inspection of dairy cattle under the Tuberculosis Orders, etc., was as follows:—The total number of cattle examined was 53,623, made up as follows: cows in milk, 38,071; dry cows in calf, 8,910; heifers in calf, 6,642; total, 53,623. The number suspected to be suffering from any of the diseases specified in the Tuberculosis Orders or the Milk and Dairies Act and Order was 471, being ·87 per cent. Of the suspected cases, tuberculosis, in its scheduled forms, accounted for 264, all of which were confirmed on *post-mortem*. The diseases might be grouped as follows:—Tuberculosis (as defined in the Orders), 264 = ·49 per cent.; suppuration of the udder 184 = ·34 per cent.; all other diseases 23 = ·04 per cent.

The Sub-Committee had appointed a Minor Committee consisting of six members of the Diseases of Animals Sub-Committee and four members of the Public Health and Housing Committee to meet the veterinary inspectors for the purpose of discussing the question whether the general inspection of dairy cattle should be continued, and, if so, whether in-calf heifers should continue to be included among the animals to be examined.

The Sub-Committee had before them reports of the County Medical Officer of Health upon the examinations which had been made by other authorities of milk consigned from this County, and on bacteriological examinations of samples of milk which had been taken in the County. The Sub-Committee authorised the Medical Officer to expend a further sum, not exceeding £25, during the next six months, in respect of the analysis of samples of milk.

As desired by the Agricultural Committee on the 21st January last, in consequence of the fact that the proportion of animals found to be suffering from tuberculosis was greater in the area of the Veterinary Inspector whose district surrounded the City of Bristol than in any of the of the other 15 districts of the County, the Bristol Corporation were asked to be specially vigilant in the examination of animals in Bristol Market with a view to preventing the exposure of tuberculous animals in that market. The Corporation had replied that although there had been a systematic examination of animals in Bristol Market, only 21 cases had been dealt with since the passing of the

Tuberculosis Order, and that the thoroughness of the inspection would be in no way relaxed in future. In accordance with their suggestion, the Committee's Inspector for the Bristol District had been instructed to notify the Corporation's Inspector of the time and place of the *post-mortem* of any animal which had previously been exposed in Bristol Market, in order that the latter may examine the carcase.

The Sub-Committee had supported the following resolution passed by the Somerset County Council, namely :—

"That in cases where as a result of the preliminary examination by the Veterinary Inspector, the owner admits that an animal is suffering from advanced tuberculosis within the meaning of the Order, and agrees to accept the minimum amount of compensation payable thereunder, a *post-mortem* examination of the animal should not be required, and that representations be made to the Ministry of Agriculture and Fisheries with a view to the Order being amended accordingly."

Poultry Research.

Work of the National Institute.

A correspondent to *The Times* contributes the following article to a recent issue of that paper :—

The Ministry of Agriculture has issued a statement regarding the operations of the National Poultry Institute scheme, which involved a capital expenditure of £26,000, of which £6,500 was contributed by the industry, and for which the annual maintenance expenditure, amounting to a sum exceeding £7,000, is met entirely out of public funds. At the outset it was agreed that in order to secure the most efficient direction at the lowest cost, branches should be established at various centres where existing facilities enabled the work to be undertaken without entailing additional heavy charges. Consequently we find disease research proceeding at the Ministry's Veterinary Laboratory at Weybridge, nutrition and breeding research at Cambridge, experiments in breeding for egg-production at Reaseheath, Cheshire, and in raising table chickens at Wye College.

The most costly branch of the Institute, and that which has yielded the most substantial results up to the present, is the National Institute of Poultry Husbandry at the Harper Adams Agricultural College, Newport, Shropshire, which is mainly concerned with advanced instruction and practical investigation. Students are prepared for the examinations for the National Poultry Diploma and certificates, while a research course is being arranged, the purpose being to train men and women to meet the increasing demand for extension and research workers. In addition, various practical experiments are being conducted, particulars of which will be available from time to time.

Experiments in breeding for egg-production and in raising table chickens have not yet yielded results sufficiently decisive to warrant conclusions being drawn, and Professor Punnett's work in investigating poultry genetics at Cambridge must at least await the end of this year's records before any light can be thrown upon the question whether fecundity is a sex-linked character. A satisfactory solution of this problem would be of enormous benefit to breeders in enabling them to concentrate attention upon crossing breeds, and perhaps strains, by which the character of fecundity would be inherited in the same way as it has already been shown that colour characters are inherited through certain crosses.

Captain T. M. Doyle's work at the Ministry's Veterinary Laboratory has been referred to in *The Times* on more than one occasion, and breeders will be reassured to know that the work now in progress covers (1) immunisation experiments against tuberculosis, (2) immunisation experiments against fowl pox, (3) immunisation experiments against "Newcastle disease," (4) immunisation experiments against avian typhoid, (5) starlings as "carriers" of coccidiosis, and the possibility of coccidiosis being transmitted from starlings to chickens. On the last-named question the conclusion has been reached that (1) infected starlings show no apparent effect from the presence of the parasite, (2) the degree of infection is very mild compared with that of domestic chicks, (3) the morphology and developmental cycle suggest that the parasite is different from the fowl form and specific for the starling, and (4) starlings play little if any part in the transmission of avian coccidiosis from one premises to another. Some conclusions regarding "Newcastle disease" and fowl pox have already been published in the *Journal of Comparative Pathology and Therapeutics* and have been noticed in *The Times*; but, apparently, the work in connection with tuberculosis and avian typhoid is not sufficiently advanced to justify reports at this stage.

The Poultry Nutrition section, under the direction of Captain Halnan, at the Animal Nutrition Institute, Cambridge, has fallen into two groups, namely, work carried out on the changes in composition of the fowl during growth, and investigation of the digestibility of poultry feeding stuffs. In this department results are sufficiently interesting and convincing to be discussed more fully on another occasion.

The World Poultry Congress, 1930.

It is announced that the Ministry of Agriculture will assume chief responsibility for preliminary arrangements and organisation for the World Poultry Congress, which is to be held in England in 1930. This decision has been arrived at in view of the fact that the invitation to hold the Congress in this country was given by the Prime Minister during his visit to Canada last year, while previous congresses have been organised respectively by the Governments of the Netherlands, Spain, and Canada.

With the wholehearted support of all branches of the poultry industry it is hoped that the congress of 1930 will be the greatest and most beneficial in practical result; and it is considered that the occasion will provide an excellent opportunity for advancing the interests of poultry-keepers in this country, by enlarging the market for British stock and by wider publicity for the business attractions of the industry.

At an early date steps will be taken to create committees in order to proceed with preliminary organisation. A prominent feature of the congress will be an exhibition of poultry and objects incidental thereto, which, it is believed, will be on a scale to attract general interest.

Experiments on Living Animals.

Home Office Report for 1927.

A Home Office White Paper relating to experiments on living animals in Great Britain during 1927 has been published by the Stationery Office (price 1s. 3d. net).

"It is stated," says *The Times*, "that the total number of experiments was 293,302, being 26,824 more than in 1926. Of these, 13,871 were cases in which serious operations were involved, and 6,224 of these were performed under the provisions of the Act making it necessary that the animal must be kept under an anæsthetic during the whole of the experiment, and must, if pain is likely to continue after the effect of the anæsthetic has ceased, or if any serious injury has been inflicted on the animal, be killed before it recovers from the influence of the anæsthetic.

"Except in a few cases, such as, for example, experiments which deal with the efficiency of antiseptics, the operations were performed antiseptically, so that the healing of the wounds should, as far as possible, take place without pain.

It was generally essential for the success of these experiments that the wounds should heal cleanly and the surrounding parts remain in a healthy condition. After the healing of the wounds the animals were not necessarily, or even generally, in pain, since experiments involving the removal of important organs, including portions of the brain, may be performed without giving rise to pain after the recovery from the operation; and after the section of a part of the nervous system the resulting degenerative changes are painless.

"In no case has a cutting operation more severe than a superficial venesection been allowed without anæsthetics. Most of the operations performed without anæsthetics were inoculations, but some were feeding experiments, or the administration of various substances by the mouth or by inhalation, or by external application, or by the abstraction of blood by puncture or simple venesection. In no instance was a certificate dispensing with the use of anæsthetics allowed for an experiment involving a serious operation.

"A large number of experiments, almost wholly simple inoculations and similar proceedings, were performed either on behalf of official bodies, with a view to the preservation of the public health, or directly for the diagnosis and treatment of disease. Two hundred and twenty-eight licensees report over 60,000 experiments which were performed for Government Departments, the Medical Research Council, county councils, municipal corporations, or other public health authorities; and 47 licensees performed nearly 110,000 experiments for the preparation and testing of antitoxic sera and vaccines, and for the testing and standardising of drugs."

Slippery Roads.

DEPUTATION TO MINISTER OF TRANSPORT.

The Ministry of Transport announces that a deputation inaugurated by the National Horse Association waited upon the Minister of Transport on Monday, July 23rd. After receiving the deputation, which was headed by Sir Walter Gilbey, the Minister was unexpectedly called away, and the deputation laid their views before Mr. Piggott, Assistant Secretary of the Roads Department, and Colonel Bressey, Chief Engineer.

The object of the deputation, which comprised delegates from 36 societies, was to report the unanimous feeling of all societies interested in the use of roads by horses, livestock, and motors that the majority of present-day roads are dangerous and slippery to all forms of transport. With a view to finding a practical solution the Slippery Roads Committee was inaugurated by the National Horse Association, with instructions to discover the best possible non-slip surface. This committee, after obtaining extensive information from all parts of the country as to what roads had proved satisfactory, had made personal inspection and experiments as to the capabilities of the recommended roads. The committee recommended three processes for first-class roads with heavy traffic, and general advice as to the treatment of second-class and other roads. The deputation invited the approval of the Minister of Transport to the committee's report, and asked him to use his best endeavours to induce surveyors to make a thorough test.

Mr. Piggott assured the deputation of the Minister's sympathy with their objects. He said that the question had received, and would continue to receive, close attention from the officers of the Department. The Minister would be glad to receive any further reports from the Slippery Roads Committee.

Colonel Bressey outlined some of the steps which were being taken by the Ministry to investigate the relative slipperiness of various forms of road surfaces, and to secure the adoption by highway authorities of methods which would produce roads suitable for use by all forms of traffic.

CLINICAL AND CASE REPORTS.

Pneumo-gastro-enteritis of Greyhounds.

By C. WENTWORTH ELAM, M.R.C.V.S., D.V.H., Liverpool.

To those practitioners who have not had the opportunity of studying this serious and most troublesome disease, I trust that a short record of my observations on several hundred cases may be helpful.

It will be readily understood that in the case of an outbreak of a serious disease in valuable animals the field of research is limited, for owners will not tolerate the expense of prolonged research work when they are aware that the disease can be kept in check by adopting strict preventive measures. Moreover, he who has any affection for a dog could not, even in the interestst of science, deliberately expose this noble animal to a disease which is often associated with a painful or agonising death.

Definition.—Pneumo-gastro-enteritis of Greyhounds is a prostrating contagious disease running a variable and at times a prolonged course, with or without pyrexia, and characterised generally by acute pneumonia and enteritis.

Animals Susceptible.—The Irish Greyhound appears to be most susceptible, yet English Greyhounds are liable to contract the disease in a slightly less acute form. Other breeds of dogs rarely contract the disease if housed on the same premises, and should symptoms develop the disease runs a mild course.

Immunity.—Recovery appears to carry with it at least a twelve months' immunity, but whether one attack gives absolute freedom from any future attack I have not had so far the opportunity of forming an opinion.

Etiology.—The disease is readily contracted by cohabitation. The virulent agent appears to be contained in the discharges but, as in distemper, it is uncertain how the contagious element gains an entrance, whether by inhalation or by ingestion.

Bacteriology.—No specific organism has, up to the present time, been isolated. Mr. R. Isherwood, M.R.C.V.S., and Dr. H. E. Annett, M.B.E., M.D., D.P.H., of the Liverpool University, have been carrying out bacteriological work in relation to the disease. The primary causal agent is probably an ultra-visible virus. The virus differs from that of distemper and is more virulent in its action.

Sources of Contagion.—The principal sources of contagion are large kennels, and if an outbreak occurs it can usually be traced directly or indirectly to Irish Greyhounds. There is a possibility that the infection may lurk in the holds of the ships which carry the dogs from Ireland.

Latent Infection.—There appears to be no doubt that the contagion may remain latent in the dog, although the animal does not manifest any serious disturbances of health. Such dogs may show no evidence of the disease for several weeks until some predisposing cause provides the stimulus to the causal agent and the disease makes its appearance. Even after apparent recovery the infective agent may cling to the animal for several weeks. This latent infection is of great importance, for Irish Greyhounds may show no evidences whatsoever of the disease for two or three weeks after landing in England, then symptoms suddenly develop.

PREDISPOSING CAUSES.—Although a specific virus appears to be essential for the development of this disease, there are other secondary, yet very important, predisposing causes which, by lowering the vitality of the defensive system, increase the susceptibility of the Greyhound to the disease. Greyhounds of any age may fall a prey to its ravages.

Climatic conditions play a very important part. In the majority of cases the symptoms almost invariably arise after a short period of wet, chilly weather.

Housing.—In those kennels, the floors of which are made of cement and not raised from the ground, the disease often assumes a per-acute form, even though wooden sleeping benches are provided. Dampness, draught, exhaustive exercise during wet weather, running in wet grass, excitement at being kennelled with strange dogs, overcrowding and worms, all favour the inroads of infection and the development of the disease.

Diet.—A change of diet, insufficient or improper food, are other predisposing factors. Trainers of Greyhounds each have their own pet method of feeding to keep their dogs in condition. A valuable Greyhound coming from Ireland may be receiving a diet somewhat as follows :—

The white of a raw egg in the early morning, followed by exercise. On returning to the kennels water is offered. At noon two slices of toast soaked in milk. Later, a roast potato. About 5 p.m., two hard-baked oatmeal cakes soaked with sheep's head broth (fat free), alternated each day with raw minced meat, while at times a little sherry or port wine is also given.

It must be admitted that some of the finest Greyhounds come from Ireland, and the Irish owner is an expert in knowing how to feed his animals so that they will arrive in England in the pink of condition, but when these dogs reach these shores, for some reason all water is withheld at the tracks, and if the dogs are sent to boarding kennels the diet usually consists of brown bread or hound meal with sheeps' head broth (from which all fat has been removed) while milk, raw minced meat, vegetables and barley are also given.

There is no doubt that the dogs when they leave Ireland are apparently fit and healthy, but once they put their feet on the boat they are exposed to many predisposing causes of illness, *i.e.*, a trying sea voyage, overcrowding on board a ship (which has probably not been disinfected), improper feeding on board, excitement on landing, changed climate, surroundings and diet, and unsatisfactory confined housing, when they have been accustomed, in most cases, to live the natural life on the farm where they could always find a warm, dry, resting place. Knowing how delicate the Greyhound is, it is only to be expected that if an infective agent is lying dormant all these factors stimulate the action of the agent of the disease.

MORBID ANATOMY.—The *post-mortem* lesions vary according to the type of disease and the length of its duration, but since a full description of the lesions found would entail much space, I will limit my few remarks to the chief systems that are affected, leaving the practitioner to add to these from his knowledge of the symptoms of the disease. The lungs may show evidence of acute congestion, while at other times the lesions of pneumonia are somewhat similar in character to those met with in pneumonic cases of distemper.

The mucous membrane of the alimentary tract is acutely inflamed, but the gastric mucous membrane does not appear to have suffered to the same extent as that of the intestine.

PERIOD OF INCUBATION.—This varies according to the predisposing causes, but I have not known the disease to develop after twenty-three days in Irish Greyhounds which have been kept in separate clean kennels since their arrival in England.

SYMPTOMS.—The symptoms in some respects resemble those of distemper. The disease may run a per-acute, acute or chronic course. The disease may be ushered in with a slight but temporary elevation of temperature, listlessness, staring coat, rigors, a desire for warmth, a capricious appetite, slight diarrhœa, a peculiar suppressed cough with " pouting " of the cheeks.

Two types are usually met with, *viz.*, the respiratory and the alimentary type, but usually both are present in the same animal during the course of the disease.

The Respiratory Type.—In some cases the onset is so sudden that dogs which appeared to be in perfect health at night are found the following morning prostrate, unable to stand, groaning, breathing rapidly, the mucous membranes being cyanotic, and unless drastic treatment is adopted death may occur within twenty-four hours. If as a result of treatment in these cases symptoms of coughing develop, there is some hope of recovery, but the absence of coughing is almost invariably followed by death. In the majority of cases, however, the disease is ushered in by the usual symptoms of ill-health previously stated, but the cough is peculiar in character. It gives one the impression that the dog is afraid to cough owing to the fact that the inflammatory changes in the pulmonary organs and intestines are painful in character, and coughing would only tend to increase the dog's discomfort. This condition, if neglected, is usually followed by acute pneumonia hæmoptysis, marked emaciation and death.

One of the favourable symptoms at the crisis in pneumonia is barking or howling. The dog frequently rises, and after barking or howling for several minutes, commences coughing to relieve the bronchii of their contents.

The Alimentary Type.—In this type the first symptom may be merely a dark discolouration of the posterior molar teeth ; if this is not detected at once serious symptoms will surely follow. Diarrhœa and dysentery are common symptoms. Vomiting is rare. All the teeth show dark discolouration ; gingivitis is marked, while gangrene of the gums, tongue and, at times, the pharangeal mucous membrane, may occur.

Differential Diagnosis from Distemper.—(1) Other breeds of dogs rarely contract the disease and should they suffer as a result of contact they show none of the usual symptoms of distemper, but merely a troublesome characteristic cough, which may persist for four to six weeks or longer.

(2) The onset is more rapid than in cases of distemper and death may occur within twenty-four hours of the onset of symptoms.

(3) Vomiting is extremely rare.

(4) Conjunctivitis is not so marked.

(5) Cutaneous lesions are absent.

(6) Meningeal symptoms and nervous complications, such as chorea, etc., are absent.

(7) The character of the cough differs from that of distemper. It is soft and suppressed, and is accompanied by "pouting" of the cheeks; moreover, it often persists for many weeks after apparent recovery, particularly if the weather is wet and chilly. The presence of a cough is a favourable symptom.

(8) The pneumonia is more acute than in cases of distemper and runs a shorter course; moreover, it is often associated at the crisis with barking or howling.

(9) A blood-stained, copious nasal discharge is more commonly met with than in cases of distemper.

Treatment.

Prophylaxis.—This is of the greatest importance and the preventive measures adopted should be similar to those adopted to prevent the occurrence of distemper in large kennels.

Irish Greyhounds should be isolated for at least four weeks and if, after a very careful examination, they are then found to be free from disease they can be housed with other Greyhounds. An examination of the molar teeth of all the dogs in quarantine should be made daily and any dogs exhibiting the slightest signs of the disease should be immediately removed to a veterinary infirmary.

With regard to the structure of the kennels at certain racing tracks, it is unfortunate that the veterinary surgeon was not consulted before the kennels were erected, for I am convinced that there is only one way of preventing disease and expense in kennels, and that is by submitting the plans of the kennels to a veterinary surgeon prior to commencing building.

It is obvious that those who were responsible for the plans of certain kennels were forgetful of the fact that the Greyhound is a delicate animal and needs warmth and dryness at all times. At such tracks, however, the veterinary surgeon often finds it an almost impossible task to prevent disease spreading in kennels which are cold and damp, and which communicate with each other. In my opinion the kennel floor should be raised and preferably covered with one of the new cement substitutes rather than cement concrete. The wooden sleeping benches should be so constructed that it is impossible for a Greyhound to find a resting place under them. Each kennel should be provided with an electric heater and should not communicate with adjacent kenne's. It may sound impracticable to suggest movable kennels in sections of four or six kennels, but they would have the following advantages:

(1) They need not be left idle during the close season, for they could be transferred to a nearby farm, where the dogs could be cared for.

(2) Their saleable value is high compared with those kennels which are permanent fixtures at a track.

(3) Should a serious disease develop in one section, that section of kennels, with the dogs, could be removed to the isolation hospital.

Hygiene.—Dietetic treatment should be similar to that adopted in cases of distemper. A warm, dry atmosphere is absolutely essential in every case of the disease. A pneumonia rug should be worn throughout the attack. Water appears to aggravate the symptoms and should be withheld. Brandy, eggs and milk, Eatan and rice pudding I find helpful in those cases where the animal refuses al other foods.

Medicinal Treatment.—This varies according to the type of the disease. I have tested the relative merits of various medicinal agents, but find that creosote and potassium iodide are most useful in the respiratory type, while salol, bismuth and chlorodyne give the best results in the treatment of the alimentary type. In acute respiratory cases, when the onset has been sudden and the mucous membranes are becoming cyanotic, the only hope of success in treatment is frequently to apply strong counter-irritants to the thoracic walls; otherwise death will invariably follow from asphyxia. The acute congestion must be relieved immediately and although oxygen and heart stimulants may prove helpful, I rely mostly on this practical method of relieving the congestion, for prior to adopting it almost every case terminated fatally. Since adopting this old, well-tried method I have saved the lives of many Greyhounds which no other form of treatment would have benefited. Its early application often checks an acute attack of pulmonary congestion and in apparently hopeless cases it relieves the congestion sufficiently to allow the animal to live long enough for the usual pathological changes of pneumonia to follow.

Convalescent Treatment.—This, again, is similar to that adopted in cases of distemper. Great care should be exercised during convalescence, for a sudden relapse is liable to occur at any time.

The Use of Ovarian Extract in the Treatment of Sterility.

By J. Pickup, M.R.C.V.S., Barnet.

The subject was a pedigree Shorthorn heifer. She had come into season regularly, but had never been served. About six months ago the cowman reported that a quantity of blood was passed from her rectum, and since then she had never been in season. I was called in by the owner, who was very keen to get the heifer in calf. Rectal and vaginal examination did not reveal anything.

I advised treatment with ovarian extract. Dr. White, of Parke, Davis and Co., suggested the following to me:—100 gr. doses of ovarian residue and 50 gr. doses of ovarian substance once daily for five days previous to expected œstrum. This course of treatment was given, and there were signs of œstrum in the heifer, but she would not stand to the bull. In three weeks' time the course was repeated, and on the fifth day she accepted service from the bull.

The ovarian substance and residue were in gr. v. tablets. These were crushed and given in about half a pint of water as a drench.

Personal.

Appointment. Mr. J. Pickup, M.R.C.V.S., of Barnet, the Veterinary Inspector for the Barnet Petty Sessional Division of the County, has been appointed Veterinary Inspector of the County Council, to act under the general supervision of the Chief Inspector of Diseases of Animals, with regard to the inspection of cattle, and giving any necessary notices under the Milk and Dairies Order.

ABSTRACTS.

[A Case of Anthrax in the Dog. (TREPEL, B. T. W. (1928.) Vol. XXXXIV. No. 22. pp. 367—8.]

A cow suffering from anthrax was slaughtered ; two dogs, present at the time, licked some blood. Four days later one refused its mid-day meal. A swelling in the region of the throat was noticed and this increased in size in the afternoon and difficulty in breathing developed. The animal died at 7 p.m. A *post-mortem* examination, carried out on the following day, showed a large, hard swelling extending from the throat half way down the lower surface of the neck. Removal of the skin showed that it was of a moist, lard-like, yellowish white appearance. On section the central portion was yellowish and the deeper portion dark red. The lungs were full of blood, dark red but without inflammatory changes. The heart blood was not coagulated. The spleen was not enlarged, the pulp being soft. The liver was greatly enlarged, engorged, and dark red. Smears from the spleen pulp showed anthrax bacilli.

Five days after the cow's slaughter the other dog refused food. As a preventative against a further outbreak of anthrax, all young cattle had received a spoonful of creolin three times daily. The owner applied this treatment to the dog (1 spoonful in 1 litre of water in the course of one day). On the following day the dog was apparently healthy.

[Gonorrhœal Transmission Experiments in the Dog and other Experimental Animals. (JOST, J. (1927.) *Arch. f. w. u. pr. Tierhlkd.* Vol. 55. No. 6. pp. 503—522). (Abstract *B.T.W.* (1928.) Vol. XXXXIV. No. 17. p. 284).]

Transmission experiments of gonorrhœal pus and pure cultures of the gonococcus on to the eyes, nose, genitalia and anus of dogs, cats and pigeons some months old were without positive results. On the other hand, in five bitches, aged eleven days, injection of the vagina produced a discharge at first serous, later purulent. From this discharge the gonococcus was isolated. A positive result was also obtained in a young male dog.

[Bacteria Present in Preputial Blennorrhœa in the Dog and the Reaction of Dogs and other Animals to the Gonococcus. (JOST, J. (1927.) *Arch. f. w. u. pr. Tierhlkd.* Vol. 55. No. 5. pp. 473—499). (Abstract *B.T.W.* (1928.) Vol. XXXXIV. No. 17. pp. 283—4)].

Besides staphylococci, streptococci, *B. coli*, *B. proteus*, gram-negative coffee-bean shaped diplococci resembling the gonococcus were isolated. Infection experiments on rabbits with the gonococcus as a rule caused a rise in temperature. Application to the eyes was in a few cases without any reaction, but a slight reddening and secretion was sometimes obtained. Occasionally an acute inflammatory suppurative reaction followed. No positive result was obtained by the application of the gonococcus to the nasal mucous membrane, vagina and urethra.

(*Continued at foot of next column.*)

EXTRACT.

Inhalation Therapy : Its Public Health Applications.*

By FREDK. WM. ALEXANDER, M.R.C.S.Eng., L.R.C.P.Edin., D.P.H.
Formerly Medical Officer of Health, Metropolitan Borough of Poplar.

Inhalation therapy, which in the modern sense of the term has only been introduced into this country in a tentative way during the last few years, is, so far as my observations go, a form of treatment that will go very far and relieve diseased conditions that have hitherto caused serious difficulties to medical officers of health.

It has, of course, long been the practice to treat such diseases as asthma, bronchitis, whooping-cough and so forth by direct application to the lung. Hippocrates, for instance, had a very definite means of applying inhalation therapy. Pliny advised sufferers from chest complaints to inhale fumigated pine needles because he had observed the improved state of health of patients when they lived in pine forests. Later, in the third or fourth century A.D., chest troubles were dealt with by recommending the inhalation of fumes or smoke from burnt ships' ropes or fir cones. Then came, with rare exceptions, an interlude, but in the early days of my own practice I remember the case of a child being advised to have tar collected from the street, stir it with a red-hot poker and then inhale the fumes. He was suffering from whooping-cough and the treatment gave him relief. It was supplemented by the insistence of the physician that he should play with a tarred rope during the day and sleep at night with it in the neighbourhood of his nostrils.

It was not until the eighteenth century, when the discovery of oxygen and the origins of modern chemistry took place, that the medical profession and the public again began to take an interest in gases. Oxygen had been discovered and work was done in connection with various possible therapeutic agents. Disappointments followed, and it was only towards the middle of the nineteenth century that Loberthal opened the era of the great health resorts on the continent where atomised sea-water was breathed in in closed rooms. This was a

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(*Continued from previous column.*)

[Cure of Papilloma in the Mouth Mucous Membrane of a Dog by means of a Single Injection of " Wart Broth." (HASITSCHKA, L. (1927.) *Wien. Tierärztl. Wsch.* Vol. 14. No. 1. pp. 16—18). (Abstract *B.T.W.* (1928.) Vol. XXXXIV. No. 17. pp. 283—4)].

The broth is prepared as follows :—A pea-sized wart is cut off, washed in saline and rubbed up with 10 c.c. saline. The injection of this produces a large abscess. Simultaneously the mouth warts become cone shaped and on the fifth day fall off. Little stumps are left which gradually shrink and disappear.

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* Extracted from *The Medical Officer*, 2nd June, 1928, No. 1036, Vol. XXXIV., No. 22.

great advance, but really amounted to nothing more than an adaptation of what had already been done by Hippocrates and Galen. Inhalation therapy was then still in the empirical stage. The particles inhaled were, relatively speaking, of enormous size, and never reached the deeper recesses of the lungs. Then came the race in the liquefaction of gases. The Royal Institution had already achieved the liquefaction and solidification of such gases as chlorine, which, under modern methods of technique, are mere child's play. Leaving out the stages, Dewar ran down the scale of temperatures and gave to the world liquid air and oxygen in easily accessible form. Onnes followed with the fantastic achievement of liquifying helium at a temperature approaching absolute zero. For a considerable period these discoveries, fascinating from a scientific standpoint and useful from that standpoint, never came within the purview of the man in the street. Inhalation therapy was a plant of arrested development. Recently, however, that plan has begun to burgeon afresh, and its roots have dug down to the work of men like Priestly, Dewar, Onnes—only to mention a few who made oxygen and liquid air commercial possibilities.

Inhalation therapy, has, in fact, as a result of compressed oxygen and of compressed air, that had followed in its train, become an ordinary article of commerce. Pure science gave to medicine discoveries such as the miner's safety lamp, and medicine has reaped the benefit of having carried the baby when science was in its childhood in the days before Sir Joseph Banks, when even King Charles the Second, despite his prescience, only looked on science as a curiosity.

The curiosities of science have given the medical officer of health a new weapon for fighting diseases. He can now fight asthma, whooping-cough, chronic bronchitis, emphysema—to mention only a few possible complaints, as a result of the application of pure science to medical problems.

The problem, so far as the medical officer is concerned, is a simple one. He needs a cylinder of compressed oxygen, or a cylinder of compressed air will answer the purpose. When the oxygen is released—*ego ipsemet vidi*—and passed through water the issuing stream of vapour is so minutely divided that it will not even dim the surface of a cold mirror held in front of it.

This was a demonstration of which I had heard, but which I could hardly believe. Yet more than this can be done. The stream of water carries with it its own particular drug, and in view of the minute particles into which the water has been divided, it is possible to mix intimately the drug contained in the water with any oil that it is desired to administer. I have seen the effectuality of the mixture, have inhaled it and have studied the card indices on which the results are recorded for all sorts of bronchial conditions, including asthma. There are not 100 per cent. cures, but there are apparent cures, alleviations and cases where no result has been obtained.

For my own part, having seen the amazing physical subdivision of the drugs administered—I sent down only two days ago a specimen of cypress oil which atomised perfectly—I am convinced that we have in inhalation therapy one further weapon in our armamentarium. Insulin cannot be given as such through the stomach. It can be given through the lung. Already we know exactly how much of the drug has been administered to the patient by injection by the mouth or per rectum, the question is how much has been effectively absorbed.

The physical subdivision seems to me an enormous advantage, and there are others. In the case of respiratory diseases we obviously get at the injured tissue at once, and reach not merely the gross lung, but the alveoli of that lung. As the lung surface is enormous, in view of the minute subdivision of the particles involved and in view of the fact that standardisation of the dose is possible, this constitutes one further advance in the direction of making medicine a quantitative science. Cushny showed that errors had been perpetuated throughout the history of medicine so far as drugs were concerned. At University College and at Edinburgh he did more than most to prove that drugs which have been reputed for years acted entirely differently from the way in which they were supposed to act. It is my solemn conviction that the new method of inhalation therapy, which has the advantage of immediate action, will add very quickly to our knowledge. So far as our patients are concerned, whether they are in institutions or whether they are under private care, they may, and I should say will, be benefited by the advantage of absorbing drugs through the lungs in a way that they cannot obtain by injection or by taking them through the mouth.

The actual apparatus which I have had in use for the past week or so, consists of an oxygen cylinder as the essential part. It has a manometer controlled by a special device which regulates the pressure. The oxygen passes through a special valve, and thus reaches the drugs which are contained in two different tubes and it is possible to regulate the strength of the flow to either of these tubes. The drugs in either case reach the patient through something that can be compared to a chloroform mask, and as inhaled are of the order of from 5 to 10 μ diameter. Among the drugs which are already being used are: adrenalin, camphor, menthol, eucalyptus, cajuput oil, guaiacol, borax, insulin and cypress oil.

While the exploitation of the treatment is obviously still in its infancy, it seems from the card records I have scrutinised to have proved its efficacy in asthma and in other respiratory diseases. As medical officer of health for Poplar I had repeatedly to deal with distressing outbreaks of whooping-cough, and the best that I could do with them was to provide a crude form of inhalation therapy with cypress oil.† I should welcome the enterprise of some medical officer of health who would use this more scientific method of applying cypress oil to such cases—I have verified for myself that it atomises perfectly. I should also be glad if medical officers of health would attempt it for the relief of hay-fever, and still more pleased if they would try to use it in cases of obstinate tuberculosis. Experiments with the apparatus should at least be made upon diphtheria germ carriers and as a prophylactic in cerebro-spinal meningitis contacts.

† Special Report by F. W. Alexander, 1922 (out of print) Library R.C.S., Eng.; *Lancet*, 25th March, 1922, p. 605.

After all, inhalation therapy is as old as Hippocrates. It is within the last ten years that it has been established on a standardised quantitative basis. It does not seem too much to ask that the medical profession, and more particularly the medical officers of health, should give it a trial now that it has changed from the empirical to the scientific basis.

Since he assumed the control of the Ministry of Health, Mr. Neville Chamberlain has introduced many reforms, and among the suggestions he has made is that the medical officers of health could carry out research work that would be of immense value even by mere analyses of the statistics with which they have to deal. Continental experience on a large scale, extending over a number of years, has proved that treatment directly through the lung is of value in a large number of cases. The method is reasonable, because it introduces the drug directly into the blood-stream. It is valuable because it avoids the alteration or destruction of the drug by means of the gastric juices. In the case of patients who are prepared to undergo the test, it is possible to know exactly the amount of the drug they have absorbed, and that they have absorbed effectively. Portions of it are obviously excreted through the lung and this is easily measurable. Other portions are excreted through the kidneys and so forth, and consequently it is easy for the physician in charge to know, not merely what dose he is giving, but how much is being absorbed.

Experimental evidence has proved that the whole of the lung surface is reached by the atomised drugs that are given. There is no case on record where any discomfort is experienced by the patient. Absorption of the drug is immediate, and in the case of paroxysms it is claimed that immediate relief is obtained. From the physiological standpoint the method of administration would appear to be superior either to administration by the mouth or by injection, because the massive dose is avoided, and the drug enters the body by what after all is a very natural channel. There are no recorded cases of vomiting, and so far the drugs administered have been admirably tolerated.

[EXTRACTOR'S NOTE.—It appears that the methods described in the above article might be adapted extensively to veterinary medicine.] A. R. S.

THE QUARANTINE STATION.

If the inquiries made and answered at the bureau provided at the Royal Show for the convenience of oversea visitors are a fair index, the country is on the eve of a brisk demand for pedigree stock of all kinds. Every part of the Empire, including Ireland, was repesented by inquirers as to the facilities for passing actual or prospective purchases through the quarantine station on the Thames. The one obstacle is the persistence of foot-and-mouth disease. The Royal Agricultural Society, which supervises the administrative work at the station, wishes it to be understood that no further applications for accommodation between July 24th and August 15th can be entertained, as the station is fully booked till the latter date. This is very gratifying, in that it indicates continued appreciation of British stock in the oversea Dominions and Colonies—also in other countries abroad—but aggravating in the sense that the loss resulting from recurring outbreaks of foot-and-mouth disease is emphasised.—*The Times.*

DIVISIONAL REPORTS.

South-Eastern Division.*

SUMMER MEETING AT THE WELLCOME LABORATORIES.

The Summer meeting of the Division was held on July 4th at the Wellcome Physiological Research Laboratories, Langley Court, Beckenham, Kent. The weather was perfect, and the beautiful situation of the laboratories made an ideal setting for the excursion.

The following members were present: Major L. P. Pugh (President), Messrs. J. W. Bruford, F. J. Hodgman, R. A. Edwards, F. Crowhurst, H. Gooch, J. B. Dier, F. Marks, W. D. Halfhead, H. Taylor, P. Perrin, W. B. McAleer and H. P. Hogben (Hon. Secretary). Visitors included Dr. R. Gwatkin (Ontario, Canada), and Mr. J. M. Armfield (Tanganyika, Africa).

Letters of regret at inability to attend were received from Prof. J. B. Buxton, Messrs. E. B. Reynolds, T. F. Hogben, W. W. Gulleford, G. W. Dunkin, H. Head, W. Cattell, J. W. N. Hinton, E. Ebbetts, E. B. Barrett, and J. W. Pritchard.

Business being negligible, practically the whole afternoon was spent in investigation, the meeting taking the form of a tour of the laboratories. The stables were first visited and demonstrations of the methods of injecting horses with toxins and other antigens, and the bleeding of horses were given. Explanations were made of the general scheme of horse management, and the party was conducted through several of the stables.

Visits were then made to the various laboratories and the following pieces of technique were explained and demonstrated: (1) The making of toxin on a large scale, including growing of the cultures, filtration, etc.; (2) The testing of toxins for lethal power and for combining value with serum; this involved the injection of mice by the intravenous method and the actual titrations of a batch in the making were carried out; (3) The intradermic method of testing the potency of toxins; guinea-pigs had been injected the previous day, and the reactions were pointed out; (4) The testing of a batch of *Vibrion septique* toxin-antitoxin mixture for antigenic value; guinea-pigs had been injected with the vaccine on two occasions, and were due for testing on the day of the demonstration. The test consisted in the intravenous injection of these animals with pure *Vibrion septique* toxin. Protected animals lived while control animals died; (5) The standardisation of tuberculin in guinea-pigs; (6) The standardisation of pituitrin.

Several specimens of a particularly interesting nature were also shown: (1) Guinea-pigs which had died from *B. chauvæi* and from *Vibrion septique* infections; (2) Guinea-pigs infected with *Leptospira icterohæmorrhagica*—the cause of canine jaundice; (3) A portion of intestine of a cow showing tuberculous lesions. It was explained that this cow had never reacted to the double intradermic test, but always when injected subcutaneously with tuberculin; (4) Specimens of the septum nasi of a horse showing hæmorrhages. This horse had apparently reacted typically to the mallein test. It was pointed out, however, that

* Received on July 16th.

horses during the course of immunisation may, when injected with mallein, give a more or less typical reaction, this being due to a non-specific protein reaction and not to mallein; (5) Guinea-pigs showing the Strauss reaction to *B. mallei*. Specimens were also shown of the same reaction in guinea-pigs when injected with *B. preisz-nocard* isolated from the lymphatic glands of frozen mutton carcases. It was pointed out that in one case only had this organism been isolated from a home-bred sheep.

The tour also included visiting incubating rooms, cold storage rooms, and other departments. The demonstrations and explanations were made by Major T. Dalling, Capt. J. H. Mason and Mr. W. S. Gordon. Dr. O'Brien, the Director of the laboratories, and Dr. Okell, also took part.

Tea, which followed, was welcome after some considerable amount of physical exercise and strenuous mental application to the understanding of research work problems.

In proposing a vote of thanks to the Director and his staff for the excellent programme provided, the PRESIDENT remarked on the necessity of observation in the life of veterinary surgeons, and he thought that a tour of this kind gave greater opportunity for the sharpening of that faculty than could be accorded by the reading of papers.

Mr. J. B. DIER, in seconding, cordially supported the view of the President, and agreed that a greater variety of information had been acquired in a more pleasurable way than was possible at ordinary meetings.

Mr. O'BRIEN briefly responded, and stated that he was pleased to welcome the members there, and show them the work which was done.

The meeting then dispersed with the object of further digesting some of the knowledge which had been attained.

HUGH. P. HOGBEN, *Hon. Secretary.*

Derbyshire Division.*

MEETING AT DERBY.

A meeting of the above Division was held at the Royal Hotel, Derby, on Tuesday, July 12th, 1927. The President, Mr. G. J. Furness, occupied the Chair, and there were also present: Messrs. J. C. Deville, J. D. Fulton, J. C. Heather, A. Levie, E. Marrison, O. V. Gunning (Hon. Secretary) and Mr. A. H. Hunter as a visitor.

Regrets for inability to attend were received from Messrs. F. T. Prince, J. McClement, H. S. Cockburn, H. W. Steele-Bodger, F. W. Aston and P. M. Evershed.

The minutes of the last meeting were confirmed. Mr. Percy Abson, Nottingham, was unanimously elected a member of the Division.

The HON. SECRETARY raised the question of the date of election of representatives to Council, pointing out that as they were elected in October after the Annual Meeting N.V.M.A., they did not come into office until the following year. Despite considerable discussion, no decision was arrived at.

The Hon. Secretary also raised the question of the reporting of meetings and suggested that as he was single-handed at any time it might not be possible for him to attend. He therefore suggested that steps be taken to obtain the services of a reporter. The matter was discussed and the opinion arrived at that it would be in the best interests of the Division if the Hon. Secretary continued the reporting of meetings in preference to the employment of a layman. The members present promised to support the Hon. Secretary in this duty and he therefore agreed to continue.

Mr. J. C. Heather, M.R.C.V.S., then read a paper on "The Examination of Hunters as to Soundness, with a view to Purchase." [This paper, and the discussion which ensued, are reproduced elsewhere in this issue.—Ed.]

At the conclusion of the meeting a hearty vote of thanks was extended to Mr. Heather for his instructive paper and also to the President for his conduct in the Chair.

O. V. GUNNING, *Hon. Secretary.*

* Received on July 16th, 1928.

Central Division.*

VISIT TO MESSRS. ARMOUR'S LABORATORY.

About 25 members of the Central Veterinary Society attended at the Laboratory of Armour and Company, Ltd., on Thursday, July 12th, when an opportunity to view the various manufacturing processes in connection with the preparation of Glanoid Medicinal Products of Animal Origin was given.

Mr. H. Ansell Lamb, the laboratory manager, showed a series of museum specimen jars containing pituitaries, pregnant ovaries of cow and sow, suprarenals, thyroid, spleen, parathyroid, pineal, mammary, lymphatic, spinal cord, and pancreas, all of which have been so treated as to retain their natural colour. The various preparations were then introduced in their final stage, and suprarenal and thromboplastin, both exceptional hæmostatics, were discussed at length. As capsules and tablets of various descriptions were introduced, the members raised questions on their application and dosage for various types of animals, and the conditions for which they were indicated.

The party then moved to the wet room, where the various methods of weighing and filling were introduced, and afterwards to the compressing and capsule room, where one of the latest types of compressing machines had just been put into operation to meet the increased demand, and allowing for the manufacture of very large sizes of tablets necessary in veterinary medicine.

After a brief interval for tea, the various other parts of the laboratory were visited, and finally Captain Townson, in a brief but humorous speech, thanked the company for entertaining the members.

It was pleasing to see such a large attendance on such a very hot afternoon, those present being:—Captain W. K. Townson (President), Mr. J. W. McIntosh, Captain W. K. Townson, Mr. J. Willett, Captain Wm. Watt, Mr. G. Rennie, Captain Richard Scott, Major G. Rees-Mogg, Mr. N. Dobson, Major Hamilton Kirk, Messrs. R. A. Willett, A. Leslie Sheather, N. S. Barron, Arthur B. Orr, J. M. Armfield, W. Perryman, H. E. Bywater, T. R. Harris, and Captain G. N. Bushman.

Apologies for absence were received from Mr. H. L. Roberts, Major F. Chambers, Captain S. J. Motion, Captain L. S. Balls, Dr. Tom Hare, Professor G. H. Wooldridge, and Mr. J. F. Macdonald.

* Received on July 23rd.

STUDENTS' CONTRIBUTIONS.*

A Case of Meningitis in a Yearling Thoroughbred Colt.

By JOHN M. MCDONALD,
Glasgow Veterinary College.

The subject was a thoroughbred yearling colt, brought rom Ireland about two weeks previous to the first professional attendance.

The history of the case showed that a few days after arriving in this country the colt was thought to be rather dull and sluggish, but no great attention was paid to this by the trainer, as the appetite was good and the animal did his "gentling" exercise fairly well. The dulness was thought to be due to the onset of the common "dealer's cold." At the same time, the colt was known to harbour strongyles. The sluggishness increased so much that on occasions the colt lay down while being led about and handled. At this stage professional advice was sought.

On examination, which took place on the colt's return to stable from his work, the patient appeared dull and listless, with the head hanging and the eyelids half closed. The pulse was of good character, though beating 60 to the minute. The temperature was 105°, due in part no doubt to his having just come in from exercise, as next day it was normal. The appetite was good, but the bowels were sluggish, for which an alterative ball was administered.

Next day the condition seemed improved. Though still dull, the pulse was down to 40, and the temperature normal. The alterative medicine had acted well, but the head still hung depressed and the colt appeared as if half unconscious.

Twenty-four hours later the patient appeared to be worse than before. The eyes were almost closed, incoordination of movement and loss of balance were noted, and the head was depressed or pressed into the wall. "Circus walking" anti-clockwise indicated some brain affection.

On palpation, the muscles of the poll region, over the wings of the atlas, etc., were found to be painful on pressure. The eyelids and lips, especially the lower lip, drooped considerably, and partial blindness was evident. For the first time the appetite became impaired, due to dysphagia, as the pharynx became from this time, more and more affected. The pulse and temperature were now both slightly subnormal, and respirations slow. This was taken as evidence of the medullary vital centres becoming slightly involved. Apart from the intestinal torpidity the systemic condition of the patient was still good.

The trouble was now diagnosed as meningitis, of doubtful origin, but probably due to the colt having been thrown violently back into his halter, thus accounting for the bruising of the occipital region.

The lesion could be fairly well located by noting which structures were affected and tracing their nerve supply back to the cranium. Fears were entertained of a posterior extension of the inflammation, toward the vital centres in the medulla.

To check this, a pack of crushed ice was applied to the poll, to be renewed every two hours or so, to maintain a constant cold application. The pack was to be kept on night and day; at the same time a physic ball was administered to relieve congestion and stimulate the liver and bowels. The diet ordered was mainly mashes, to be made tempting and nutritious, and to be offered in small quantities at a time.

For the next four days (up to the seventh day since the first visit) the appetite, in spite of all attempts to coax the colt to eat, became worse, and water was refused, though the lips would be dabbled in the water. The patient was apparently only half conscious and showed no intelligent interest in anything. Circus walking and almost complete blindness, together with paralysis of eyelids, lips and pharynx, were very noticeable. Balance and co-ordination were almost completely lost, and deglutition was almost totally arrested. The pulse, respirations and temperature were slightly subnormal. Knocking the head, knees, etc., against walls, manger, etc., caused numerous superficial wounds.

By passing the stomach tube, a gallon of milk was introduced into the stomach, a process which showed, by the resistance offered, that the motor centres were unaffected. To encourage thirst, to keep the system in order, a sodium chloride electuary was given three times daily.

By the eighth day, the colt had lain or fallen down several times and could not be induced to rise, though he always managed, sooner or later, to rise unassisted.

On the ninth day the colt was down when visited, and though he could not be induced to rise, he resisted so strongly the passage of the stomach tube again, that the attempt was abandoned as being too exciting for the patient. A couple of hours later the colt rose to his feet unassisted.

Up to this time bodily condition had been maintained remarkably well, but from now onwards wasting was very noticeable. The inflammation appeared to be checked in its spread, as no further structures were involved. Treatment as before was persevered with until the 13th day, when it was decided to change on to a course of strychnine three times daily. On the 14th day the ice pack was discontinued, and the coaxing of the appetite met with a little more response.

The strychnine was persevered with. About the 19th day a gradual improvement in eating and drinking was noticed, and by the 25th or 26th day the appetite was fairly good and deglutition fairly normal though some of the long hay was still being quidded. Sight was gradually restored as also the use of eyelids, lips and pharynx. The strychnine was discontinued on the 26th day and cod-liver oil and mineral tonics substituted. Easy walking exercise was commenced about the 30th day.

The colt gradually regained flesh and spirits and was then treated for the intestinal strongyles, after which recovery was uneventful. To-day the patient has developed into an uncommonly big and good-looking animal. He has already raced twice, and though naturally a bit backward for one of his age, his owner has great hopes of him for the future.

Conclusions. The case was one of meningitis involving chiefly the coverings of, and thus affecting, the cerebellum, shown by loss of balance, etc., and the optic, facial, and

* Cases submitted for award under N.V.M.A. Clinical Prize Scheme for Students, 1927.

pharyngeal nerves, with a tendency to extend posteriorly over the cardiac, respiratory and thermogenic centres in the medulla, as evidenced by the lowered state of pulse, respirations and temperature. The ice pack was, rightly or wrongly, given credit for having checked this extension.

An interesting feature of the case was the attempt to locate accurately the lesion. By tracing out on a dissected specimen the nerve supply to the various structures involved, a fairly accurate map of the area affected was obtained, and by noting the structures later involved, any extension could be detected and steps taken to check the same.

The cause of the trouble was never definitely proved, but the suggestion that the colt had been thrown violently back into his halter, producing inflammation of the meninges, appeared as feasible as any. Though the infestation of the alimentary tract by strongyles was suggested, this was not seriously regarded.

The superiority of cracked ice over plain cold water as a pack for long continued use was made use of in this case, as enough ice, it was found, could be applied to last about 2½ hours before requiring renewal, without being unduly heavy or bulky. Plain cold water packs, on the other hand, soon become plain warm water packs, requiring renewal about every half hour, and it is hardly reasonable to expect a groom to attend every half hour throughout the night, especially if he is in a comfortable loose box with lots of nice clean straw and a couple of horse rugs to sleep on.

The use of the sodium chloride electuary was, it is now thought, a mistake. Instead of inducing thirst, which, owing to inability to swallow could not be relieved, it is the writer's opinion that water, either plain or as saline solution, should have been administered *per rectum* to relieve thirst.

The internal administration of pot. iod. to promote absorption, was deliberately withheld, firstly because the ice pack had rendered such aid unnecessary and therefore contra-indicated, and secondly it was desired to give as little medicine as was consistent with good practice, in order to upset the alimentary system as little as possible.

At one period the colt appeared such a hopeless case that not even the most confirmed optimist would have dared to prophesy a complete recovery, but the *vis medicatrix naturæ*, given its own time and not forced, worked wonders, as to-day the colt is a very big, handsome, and speedy two-year-old indeed.

Two Cases of Radial Paralysis in the Horse.

By J. Adamson, Jun., School of Veterinary Science, University of Liverpool.

Subject. Bay pony mare, 5 years old.

History. The pony ran away with an empty trap and collided with a lamp post. "Dropped elbow" was evidenced immediately, and it was with considerable difficulty that the pony was removed to the nearest stable.

Diagnosis and Treatment. When seen, the pony was in a frightened condition and sweating profusely. It stood with the shoulder and elbow extended, and the knee flexed, only the toe touching the ground. There were no superficial injuries. The animal was immediately placed in slings, and owing to its frightened condition an injection of morphia hydrochlor. was given. Local treatment consisted of fomentations and application of stimulating liniment in the region of the triceps muscles, which later became atrophied. Each day it was taken out and subjected to forced exercise in a flat yard. Ten days later slight improvement was noticed and the shoulder was treated with T. cantharid.

Sixteen days after the accident the pony was so much better that the slings were removed; it was able to lie down and get up in the stable, and forty-two days after going lame was pronounced sound and sent to work.

2. *Subject.* Aged bay gelding used as a cab horse.

History. The horse was brought out in the morning, but had not gone very far when it fell and, on being raised, was found to have "Dropped elbow." It was floated to the stable, being unable to walk at all, where it was slung, and the same line of treatment followed as in the first case, the shoulder being blistered on the fourth day. Progress was unfavourable and the animal was still unable to move at the end of five weeks, and was shot. The subsequent *post-mortem* examination revealed a fracture the upper end of the first rib.

What is the Use of Zoology?

Under the above heading, the *Daily Express*, in a recent issue, states :—

"The splendid gift of £120,000 which has just been promised to launch and maintain a department of zoology and comparative anatomy at University College, London, with the proviso that this sum is doubled in a reasonable time, gives rise to the inevitable question: What use is zoology in relation to modern human affairs?

"Professor D. M. S. Watson, Todrell Professor of Zoology and Comparative Anatomy at University College, effectively answered this question in an interview with a *Daily Express* representative.

"'During the last quarter of a century,' said Professor Watson, 'zoology has become a science of great economic importance.

"'Methods for the control of animal parasites and pests, both of domesticated animals, plants and man, are becoming more and more necessary as the exploitation of new countries (especially the tropics) extends, and the discovery of these methods comes within the scope of zoology, the science of animals.

"'The cotton boll weevil, for instance, is responsible for the loss of many millions of pounds in cotton growing countries. The tsetse fly has made large areas of Africa uninhabitable.

"'Zoologists are actively engaged now on the control of these and many other pests.

"'Take sea fisheries, an important British industry which is becoming progressively more important in the Dominions.

"'They present many zoological problems, chief among them perhaps being the extreme variability of herring fishing. A ground which has been extraordinarily productive one year may yield little or nothing the next.

"'It follows that the cost of maintaining boats and their crews on an unproductive field may swallow up the profits of a formerly successful fishery.

"'At present the industry is a gamble, in which you may make a fortune or lose it. And herring fisheries are the largest branch of the industry.

"'The possibility of predicting the catch in any season would place the finances of the industry on a much firmer basis at once. What is being done to this end? Zoo-

logical investigations are now being carried out by an international commission to solve the problem.

" ' But over and above the economic side of direct saving of money I believe the future importance of zoology will lie more especially in its influence on our knowledge of anatomy, physiology, and psychology.

" ' Comparatively little is known of the latter subject, and the chief hope of psychology as an exact science lies in its association with the study of animal behaviour.

" ' Finally, it is obvious that zoology must have a direct bearing on the development of medical science.' "

Meat Traders and the Tuberculosis Order.

At a meeting of the Executive Council of the National Federation of Meat Traders, held on 17th July, Mr. J. Edwards brought up the question of the losses from bovine tuberculosis incurred by butchers. He had no doubt they had read the reports of the World's Dairy Congress which had been held in England recently. He, personally, was convinced that if the Tuberculosis Order was rigidly enforced much would be done towards eliminating the disease from the herds of the country and, incidentally, putting a stop to the great losses which they, as meat traders, suffered through condemnation of carcases. The only way they could deal with the problem was by continually directing public attention thereto, and he therefore moved the following resolution:—

> That this Executive Council respectfully directs the attention of the Chief Medical Officer of the Ministry of Health (Sir George Newman) to the great waste of food. animals, particularly cattle and pigs (through tuberculosis), and the consequent great loss to the individual trader who purchases his stock on the hoof. We regret to observe from the information which reaches us that the Tuberculosis Orders appear to be laxly administered, and this is the more to be regretted since members of this trade have been looking to this legislation to diminish their losses from this disease; and it is feared that the present method of administration will bring little relief to the present generation. For this reason this Executive Council appeals to the Chief Medical Officer to recognise the great national waste and to use his great influence to wipe out the cause.

Mr. T. Masheter said he was delighted to second the resolution moved by his friend Mr. Edwards. Anything they could do in the direction of the elimination of tuberculosis in the herds would not only be of benefit to them as meat traders, but would be of immeasurable benefit to the community at large.

Mr. J. B. Pitchford asked whether it would not be possible to include in the resolution the case of a farmer who, having a beautiful looking beast which had failed to pass the test had deliberately sent it to the market where it had been purchased in all good faith by a trader, who, as soon as he got it home, received a call from the local Medical Officer, who requested that the trader should let him see the carcase as soon as it was slaughtered. The trader, who was delighted with his purchase, readily agreed and arranged for the Medical Officer to be present at the time of slaughter. Much to the trader's surprise and dismay, he found that when the beast was slaughtered it was riddled with tuberculosis, and the whole carcase had to be condemned. He then discovered that the Authorities rather suspected this, having noticed the small marks where the tuberculin had been injected for the test. If anything could be done to stop such a disgraceful action, then it should be done.

Mr. C. Muffett thought they ought to include in Mr. Edwards' resolution words to the effect that any animal found to be infected with tuberculosis should be slaughtered at once.

Mr. Edwards said this had already been done.

The resolution was then put and unanimously adopted.

Meat Trades Journal.

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

September 1st to 7th—N.V.M.A. Congress at Newcastle-on-Tyne.

August 13th—Meeting of the Editorial Committee, N.V.M.A., 4-30 p.m.

August 23rd—Midland Counties Division Picnic to Coleshill and Malvern.

The Newcastle Congress.

Every member of the Association who has paid his or her subscription will now be in possession of a copy of the Congress Handbook for the year. Those who desire additional copies, and readers of the *Record* who may not belong to the " National," can secure Handbooks at a cost of 3s. 6d. each, on application to the General Secretary, N.V.M.A., 10 Gray's Inn Square, W.C.1.

. . . . . .

Fellows or Members desiring gowns for the Annual Meeting at Newcastle should apply to Messrs. Ede and Ravenscroft, 13 Chancery Lane, W.C.2, stating whether a Member's or a Fellow's gown is required, chest measurement and height. Particulars of cost will be supplied on application to Ede and Ravenscroft's, who are the official robe-makers to the Royal College. It is hoped that as many members of the Association as possible will wear academic dress at the appropriate Congress functions.

. . . . . .

The Provisional Committee have in mind the arranging of what would be a most interesting feature of the social programme, provided a sufficient number intimate at once their intention to participate. The suggestion is that a whole-day excursion should be made to the Roman Wall on Tuesday, September 4th or Wednesday, September 5th, and members who desire to take such an excursion should advise the Local Secretary, Mr. J. R. Rider, " Ivycroft," Carmel Road, Darlington, without delay, at the same time stating any preference they may have for one of the dates mentioned.

Lady M'Fadyean.

Our readers will be relieved to learn that the improvement in Lady M'Fadyean's condition (following her operation for appendicitis) which we recorded last week has been maintained, and that the hopes entertained for her recovery, which at one time were very slight, are increasing daily.

The Far-Eastern V.M.A.

We shall be publishing in an early issue a report of the proceedings of the Conference of the Government Veterinary Surgeons of Malaya, which was held at Seremban, Negri Sembilan, in February last.

An important feature of the Conference was the formation of the Far-Eastern Veterinary Medical Association, and for the information of members of the profession resident in that part of the world who may desire to join

that Association we wish to state that the Hon. Secretary is Capt. R. A. B. Stanhope, B.V.Sc., M.R.C.V.S., G.V.S., Seremban, Negri Sembilan, Federated Malay States. The President of the newly-formed Association, which is already affiliated to the "National," is Mr. H. G. Simpson, F.R.C.V.S., G.V.S., Penang, Straits Settlements.

We are asked to announce that the officers of the Far-Eastern V.M.A. will be glad to arrange for the meeting, at either Penang or Singapore, by one of the officials of the Association, of any member of the profession who may be passing through those places, if notification is given as to the time of his arrival.

Animal Diseases Research.

It was intimated at the annual meeting of the Animal Diseases Research Association of Scotland at Aberdeen on July 25th that a person who wished to remain anonymous had given £10,000 to the association to produce an income of £500 a year. The money is to be used for strengthening and increasing the research staff.

Errata.—The note (in last week's *Record*) appearing in brackets below the list of successful candidates from London for the R.C.V.S. Membership Examinations, *viz.*, "The Class D candidates were examined at Glasgow," was inserted in that position by a printer's error. It should have appeared below the list of successful candidates from Liverpool.

. . . . . .

Mr. W. G. Burndred, M.R.C.V.S., the author of the paper "Rays of the Spectrum in Veterinary Practice," published in last week's *Record*, resides at Hanley and not, as then erroneously stated, at Blackburn.

Army Veterinary Service.

London Gazette. War Office. Territorial Army.

July 27th.—The King has conferred the Territorial Decoration upon the undermentioned officers under the terms of the Royal Warrant dated October 13th, 1920:—Major J. H. Wright, O.B.E. (Ret.).

Officers Training Corps.

Royal (Dick) Vet. Coll., Edinburgh.—Major W. McG. Mitchell, M.C.

R.C.V.S. Obituary.

Taylor, David Arnot, Netherhill, Beith, Ayrshire. Graduated, Glasgow, 15th December, 1910. Died 24th July, 1928.

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents

N.V.M.A. Congress at Newcastle-upon-Tyne.

To the Editor of the Veterinary Record.

Sir,—It has occurred to me that many intending visitors to the above may not have seen a sheep dog trial. One is to be held at Ponteland (a small local show) eight miles north-west of Newcastle, on Wednesday, August 29th. Dogs from the four northern counties are eligible for competition and a good display of canine intelligence may be expected.

This may be a further incentive to some to come north a few days before the Congress.—Yours faithfully, H. S. Elphick.

Newgate Street, Newcastle-on-Tyne,
27*th July*, 1928.

Memorial to the late Lieut.-General Sir Ronald Maxwell, K.C.B., K.C.M.G., late Q.M.G., B.E.F., France.

To the Editor of the Veterinary Record.

Sir,—At a recent meeting of friends and comrades of the late Lieut.-General Sir Ronald Maxwell, it was decided to erect a memorial to mark the admiration and respect for his character which were felt by all who knew him, and to commemorate the eminent services which he rendered, particularly when Quartermaster-General to the forces in France during the Great War. A small executive committee, of which I am one, has been formed for the purpose. The form of the memorial will be a stained-glass window and tablet in Rochester Cathedral.

As Sir Ronald Maxwell did so much for the success of veterinary services of the Expeditionary Force, France, not only when Q.M.G., but as Inspector-General of Communications in the early days of the war, I am anxious that we should share in the tribute to his memory in a small measure. He never let veterinary service want for anything that would add to the comfort and well-being of animals, and of the personnel who had to look after them. Apart from his organising ability and his knowledge of those engineering details that were so essential in the provision of veterinary hospitals and locations, his thoughtfulness and consideration for those who worked under him endeared him to all and made duty a pleasure. I should like to raise about £10 towards the memorial from amongst officers who served in France from the early days, and would be pleased to receive amounts say, 5s. or 2s. 6d., from officers who care to contribute. I have already over £2.—Yours faithfully, J. Moore, Maj.-General, late D.V.S., B.E.F., France.

16 Frognal Lane, Hampstead, N.W.3.

Roads for Horses.

To the Editor of the Veterinary Record.

Sir,—Mr. Bradley, the Deputy County Surveyor of Worcestershire, in his letter published in *The Times* on July 28th, states that the various societies which exist for the protection of the horse have done relatively little towards solving the problem of providing a modern road surface which is safe for horses. Surely it is not the work of these societies to shoulder the responsibilities of the Ministry of Transport. That the Ministry of Transport has taken steps to protect the interests of horses is shown by the fact that Sir Henry Maybury, the Director-General of Roads, has issued a recommendation that all road surfaces, whatever their composition, should be treated with a dressing incorporating the largest possible number of hardstone chippings. This recommendation is all the more significant when it is remembered that about a year ago Captain A. E. Astrop, Secretary of the Institute of the Horse, issued a statement in which he said that as a result of exhaustive inquiries the Institute had found that hardstone chippings rolled in when tar-painting took place gave the least slippery surface for *all* traffic.—Yours faithfully, L. E. Morris.

"Treetops," Cobham Way, East Horsley, Surrey.
31*st July*, 1928.

The Editor acknowledges the receipt of the following:—

Report of a meeting of the Southern Counties Division, from Major J. Facer, Hon. Secretary.

Communications from Mr. A. E. Bayley (Hanley), Major G. W. Dunkin (London), Major J. J. Dunlop (Chipping Norton), and Mr. J. R. Rigby (Lytham).

Annual Report of the Veterinary Department, Uganda Protectorate, for 1927.

Annual Report of the National Institute for Research in Dairying, University of Reading, for 1927.

Royal (Dick) Veterinary College, Edinburgh.

Principal:—O. CHARNOCK BRADLEY, M.D., D.Sc., M.R.C.V.S.

106th Session Commences October 2nd.

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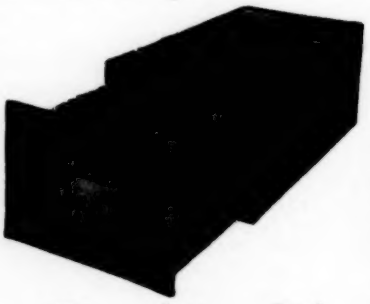

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